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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/673,055
Filing Date: September 26, 2003
Appellant(s): DOSHI ET AL.

Edward J. Meisarosh
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 06/01/2010 appealing from the Office action mailed 01/14/2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

Claims 1-4, 8-14, 18, and 19 are allowed. Claim 25 is objected to an would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Claims 20-24 are rejected. The claims on appeal are claims 20-24.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

2003/0009582	Qiao et al.	1-2003
6.130,875	Doshi et al.	10-2000
6,904,462	Sinha	6-2005

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 20, 23, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qiao et al. (Pub. No.: US 2003/0009582 A1), and in view of Doshi et al. (U.S.Patent No. 6,130, 875).

As to claim 20, Qiao '582 disclose for each link of a specified set of links in the network: (figure 1, each link of a set of links in the network) (1) assigning an initial cost to the link ([0113] assign each link a cost); determine whether the link's bandwidth can be shared with a new restoration path ([0029] determine whether two or more back connections can share bandwidth on a common link); reducing the link's assigned initial cost when it is determined that the link's bandwidth can be shared with the new restoration path ([0058] minimizing the total amount of bandwidth equivalent by the new connection established request) ([0061] minimizing the total bandwidth consumed to satisfy the new connection request may be solved) ([0067] allows the new backup path to share maximum bandwidth with other existing backup paths).

However, Qiao '582 are silent to disclosing calculating the minimum-cost restoration path for the new primary path using the specified set of links, wherein the cost of the minimum-cost restoration path is based on the sum of the cost of the links of the minimum-cost restoration path.

Doshi '875 from the same or similar fields of endeavor disclose calculating the minimum-cost restoration path for the new primary path using the specified set of links, wherein the cost of the minimum-cost restoration path is based on the sum of the cost of the links of the minimum-cost restoration path (see figure 16B, step 356, assign

demands to two routes with minimum capacity, using the one with least capacity for restoration, col. 30, lines 50-62, step 356, assigned to two routes with minimum capacity, using the route with the least capacity for restoration).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply calculating the minimum-cost restoration path for the new primary path using the specified set of links, wherein the cost of the minimum-cost restoration path is based on the sum of the cost of the links of the minimum-cost restoration path taught by Doshi '875 into the system of Qiao '582, since Doshi '875 recited the motivation in the col. 1, lines 23-25 which restoring communication in a network after a failure in link, span or node of the network, and more particular to restoration techniques in which restoration paths are pre computed at nodes distributed throughout the network.

Regarding to claim 24, Qiao '582 disclose for each link of a specified set of links in the network: (figure 1, each link of a set of links in the network) (1) assigning an initial cost to the link ([0113] assign each link a cost); determine whether the link's bandwidth can be shared with a new restoration path ([0029] determine whether two or more back connections can share bandwidth on a common link); reducing the link's assigned initial cost when it is determined that the link's bandwidth can be shared with the new restoration path ([0058] minimizing the total amount of bandwidth equivalent by the new connection established request) ([0061] minimizing the totoal bandwidth consumed to

satisfy the new connection request may be solved) ([0067] allows the new backup path to share maximum bandwidth with other existing backup paths).

However, Qiao '582 are silent to disclosing calculating the minimum-cost restoration path for the new primary path using the specified set of links, wherein the cost of the minimum-cost restoration path is based on the sum of the cost of the links of the minimum-cost restoration path.

Doshi '875 discloses calculating the minimum-cost restoration path for the new primary path using the specified set of links, wherein the cost of the minimum-cost restoration path is based on the sum of the cost of the links of the minimum-cost restoration path (see figure 16B, step 356, assign demands to two routes with minimum capacity, using the one with least capacity for restoration, col. 30, lines 50-62, step 356, assigned to two routes with minimum capacity, using the route with the least capacity for restoration).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply calculating the minimum-cost restoration path for the new primary path using the specified set of links, wherein the cost of the minimum-cost restoration path is based on the sum of the cost of the links of the minimum-cost restoration path taught by Doshi '875 into the system of Qiao '582, since Doshi '875 recited the motivation in the col. 1, lines 23-25 which restoring communication in a network after a failure in link, span or node of the network, and more particular to restoration techniques in which restoration paths are pre computed at nodes distributed throughout the network.

Regarding to claim 23, Qiao '582 disclose the limitations of claim 20 above.

However, Qiao '582 are silent to disclosing the method is implemented for each of a set of candidate primary paths, wherein a path pair cost is generated for each candidate primary path as the sum of the path cost of the candidate primary path and the path cost of the corresponding minimum-cost restoration path; and the method further comprises selecting: i) candidate primary path from the set of candidate restoration paths and (ii) the corresponding minimum-cost restoration path that together have the lower path pair cost .

Doshi '875 discloses the method is implemented for each of a set of candidate primary paths, wherein a path pair cost is generated for each candidate primary path as the sum of the path cost of the candidate primary path and the path cost of the corresponding minimum-cost restoration path; and the method further comprises selecting: i) candidate primary path from the set of candidate restoration paths and (ii) the corresponding minimum-cost restoration path that together have the lower path pair cost (see col. 33, lines 14-20).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the method is implemented for each of a set of candidate primary paths, wherein a path pair cost is generated for each candidate primary path as the sum of the path cost of the candidate primary path and the path cost of the corresponding minimum-cost restoration path; and the method further comprises selecting: i) candidate primary path from the set of candidate restoration paths and (ii) the corresponding

minimum-cost restoration path that together have the lower path pair cost taught by Doshi '875 into the system of Qiao '582, since Doshi '875 recited the motivation in the col. 1, lines 23-25 which restoring communication in a network after a failure in link, span or node of the network, and more particular to restoration techniques in which restoration paths are pre computed at nodes distributed throughout the network.

3. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Qiao '582 – Doshi '875) in view of Sinha (Patent No.: US 6,904,462 B1)

Regarding to claim 21, the combined system (Qiao '582 – Doshi '875) discloses the limitations of claim 20 above.

However, the combined system (Qiao '582 – Doshi '875) are silent to disclosing wherein the specified set of links excludes links in the network that are not SRLG-disjoint from the links of the new primary path, wherein: a shared risk group (SRLG) is a set of two or more links, for which a failure of any one link in the SRLG is associated with a relatively high risk of failure of the other links in the SRLG; and two links are SRLG-disjoint when they are not members of any one SRLG.

Sinha '462 discloses wherein the specified set of links excludes links in the network that are not SRLG-disjoint from the links of the new primary path, wherein: a shared risk group (SRLG) is a set of two or more links (col. 3, lines 65-67) , for which a failure of any one link in the SRLG is associated with a relatively high risk of failure of

the other links in the SRLG; and two links are SRLG-disjoint when they are not members of any one SRLG (col. 2, lines 50-55).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate wherein the specified set of links excludes links in the network that are not SRLG-disjoint from the links of the new primary path, wherein: a shared risk group (SRLG) is a set of two or more links, for which a failure of any one link in the SRLG is associated with a relatively high risk of failure of the other links in the SRLG; and two links are SRLG-disjoint when they are not members of any one SRLG taught by Sinha '462 into the combined system (Qiao '582 – Doshi '875). One would have motivated to do so to utilize minimum bandwidth usage is desirable to reduce cost of routing information at economy of scale (Sinha col. 1, line 35).

Regarding to claim 22, the combined system (Qiao '582 – Doshi '875) disclose the limitations of claim 20 above.

However, the combined system (Qiao '582 – Doshi '875) are silent to disclosing wherein the exclusion of links in the network that are not SRLG-disjoint from the links of the new primary path is accomplished by assigning an infinite initial cost to those links.

Sinha '462 discloses wherein the exclusion of links in the network that are not SRLG-disjoint from the links of the new primary path is accomplished by assigning an infinite initial cost to those links (col. 3, lines 63-64, col. 4, lines 12-15).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate wherein the exclusion of links in the network that are not

SRLG-disjoint from the links of the new primary path is accomplished by assigning an infinite initial cost to those links taught by Sinha ‘462 into the combined system (Qiao ‘582– Doshi ‘875). One would have motivated to do so to utilize minimum bandwidth usage is desirable to reduce cost of routing information at economy of scale (Sinha ‘462 col. 1, line 35).

(10) Response to Argument

1. Claims 20 and 24

Teachings of Qiao ‘582

In Page 4, Lines 22-25, the appellant argues that paragraphs 58, 61, and 67 of Qiao are all in Qial's invention-background section. On the other hand, paragraph 113 is in Qiao’ s detailed-description-of-the-invention section. In paragraph 113, Qiao discloses assigning each link a cost of w + B (w).

The examiner respectfully disagrees with the appellant’s argument.

Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the

references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Qiao '582 teaches assigning an initial cost to the link (i.e., the initial link capacity for every link a) [see Back Ground of the Invention of Qiao '582, Paragraph 0030].

Qiao '582 further teaches reducing the link's assigned initial cost when it is determined that the link's bandwidth can be shared with the new restoration path (i.e., minimizing total bandwidth consumed to satisfy new connection request in order to allow new connection to share maximum bandwidth with existing connection) [See Back Ground of the Invention of Qiao '582, Paragraphs 0061 & 0058 & 0067].

In Page 2, Lines 25-26, the appellant argues that the examiner did not provide any explanation for how Qiao '582 background section can teach educing an assigned link cost that first appears later in the detailed-description-of-the invention section.

The examiner respectfully disagrees with the appellant's argument.

A more efficient scheme involves **sharing the protection capacity** of a link between LSPs [See Specification, Page 11, Lines 7];

The two primary paths may **"share" the reserved protection bandwidth** of the protection link [See Specification, Page 11, Lines 15-16];

Bandwidth sharing allows computation of more optimal paths that considerably **reduce** the required amount of **restoration bandwidth**, and thus the overall **cost the network**. [See Specification, Page 18, Lines 17-19].

Therefore, the **protection capacity** and the **protection bandwidth** are the same , or equivalent to, **cost of the network** [see Specification, Page 11, Lines 7 and Page 11, Lines 15-16 and Page 18, Lines 17-19].

Qiao '582 teaches assigning an initial cost to the link (i.e., the initial link capacity for every link a) [see Back Ground of the Invention of Qiao '582, Paragraph 0030]; Qiao '582 further teaches reducing the link's assigned initial cost when it is determined that the link's bandwidth can be shared with the new restoration path (i.e., minimizing total bandwidth consumed to satisfy new connection request in order to allow new connection to share maximum bandwidth with existing connection) [See Back Ground of the Invention of Qiao '582, Paragraphs 0061 & 0058 & 0067].

In Page 4, Lines 28, the appellant argues that whatever paragraphs 58, 61, and 67 of Qiao '582 might disclose, they cannot disclose anything about an assigned link cost that is introduced much later in paragraph 113 of Qiao '582.

The examiner respectfully disagrees with the appellant's argument.

Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Qiao ‘582 teaches assigning an initial cost to the link (i.e., the initial link capacity for every link a) [see Back Ground of the Invention of Qiao ‘582, Paragraph 0030].

Qiao ‘582 further teaches reducing the link’s assigned initial cost when it is determined that the link’s bandwidth can be shared with the new restoration path (i.e., minimizing total bandwidth consumed to satisfy new connection request in order to allow new connection to share maximum bandwidth with existing connection) [See Back Ground of the Invention of Qiao ‘582, Paragraphs 0061 & 0058 & 0067].

In Page 5, Lines 7-10, the appellant argues that Qiao ‘582 does not teach bandwidth sharing among the backup connections when using this scheme.

The examiner respectfully disagrees with the appellant’s argument.

Qiao ‘582 teaches bandwidth sharing among the backup connections when using this scheme (i.e., a scheme allows the new backup path to share maximum bandwidth with other existing backup backup path) [see Paragraphs 0067 & 0061 & 0058].

In Page 5, Lines 16-19, the appellant argues that Paragraph 0061 of Qiao ‘582 teaches “minimizing the total bandwidth consumed by a new connection request “ is simply **not** the same, or equivalent to, reducing, for each link of specified set of links, the link’s assigned initial cost, let alone doing so when it is determined that the link’s bandwidth can be shared with a new restoration path.

The examiner respectfully disagrees with the appellant’s argument.

Qiao '582 teaches assigning an initial cost to the link (i.e., the initial link capacity for every link a) [see Back Ground of the Invention of Qiao '582, Paragraph 0030].

Qiao '582 further teaches reducing the link's assigned initial cost when it is determined that the link's bandwidth can be shared with the new restoration path (i.e., minimizing total bandwidth consumed to satisfy new connection request in order to allow new connection to share maximum bandwidth with existing connection) [See Back Ground of the Invention of Qiao '582, Paragraphs 0061 & 0058 & 0067].

In page 5, Lines 24-27, the appellant argues that paragraph 0067 of Qiao '582 teaches "allows the new backup path to share maximum bandwidth with other existing backup paths does not disclose reducing a link's assigned initial cost when it is determined that the link's bandwidth can be shared.

The examiner respectfully disagrees with the appellant's argument.

Qiao '582 teaches assigning an initial cost to the link (i.e., the initial link capacity for every link a) [see Back Ground of the Invention of Qiao '582, Paragraph 0030].

Qiao '582 further teaches reducing the link's assigned initial cost when it is determined that the link's bandwidth can be shared with the new restoration path (i.e., minimizing total bandwidth consumed to satisfy new connection request in order to allow new connection to share maximum bandwidth with existing connection) [See Back Ground of the Invention of Qiao '582, Paragraphs 0061 & 0058 & 0067].

In summary, paragraphs 0061 & 0067 & 0058 and other paragraphs 0030 & 0029 of Qiao '582 teach reducing a link's assigned initial cost when it is determined that

the link's bandwidth can be shared with the new restoration path. Consequently, the cited references teach this requisite feature of claim 20.

Teachings of Doshi '875

In Page 6, Lines 2-9, the appellant argues that Doshi '875 teaches the feature of "calculating the minimum-cost restoration path for the new primary path using the specified set of links, wherein the cost of the minimum-cost restoration path is based on the sum of the costs of the finks of the minimum-cost restoration path." In this regard, note that the Examiner cited Fig. 16B and column 30, fines 50-62, of Doshi as specifically teaching this feature. However, the cited sections refer to capacity, **not** cost. These cited sections say nothing about link costs, let alone a minimum-cost restoration path or the sum of the costs of the finks of a minimum-cost restoration path

The examiner respectfully disagrees with the appellant's argument.

A more efficient scheme involves **sharing the protection capacity** of a link between LSPs [See Specification, Page 11, Lines 7];

The two primary paths may **"share" the reserved protection bandwidth** of the protection link [See Specification, Page 11, Lines 15-16];

Bandwidth sharing allows computation of more optimal paths that considerably **reduce** the required amount of **restoration bandwidth**, and thus the overall **cost the network**. [See Specification, Page 18, Lines 17-19].

Therefore, the **protection capacity** and the **protection bandwidth** are the same , or equivalent to, **cost of the network** [see Specification, Page 11, Lines 7 and Page 11, Lines 15-16 and Page 18, Lines 17-19].

Doshi '875 teaches calculating the minimum-cost restoration path for the new primary path using the specified set of links, wherein the cost of the minimum-cost restoration path is based on the sum of the cost of the links of the minimum-cost restoration path (i.e., step 356, assign demands to two routes with minimum capacity, using the one with least capacity for restoration, assigned to two routes with minimum capacity, using the route with the least capacity for restoration) [see Fig. 16B, step 356, and Col. 30, Lines 50-62].

For the reasons above, the examiner respectfully believes claim 20 is not patentable over the cited references. For similar reasons above, the examiner respectfully submits that claim 24 is also unpatentable over the cited references. Since claims 21-23 depend variously from claim 20, and claim 25 depends claim 24, it is further submits that those claims are also unpatentable over the cited references.

Claim 23

In Page 6, Lines 25-26, the appellant argues that Doshi '875 teaches capacities on links. Capacities are not examples of path costs. Thus, the cited section says nothing about costs.

The examiner respectfully disagrees with the appellant's argument.

A more efficient scheme involves **sharing the protection capacity** of a link between LSPs [See Specification, Page 11, Lines 7];

The two primary paths may **"share" the reserved protection bandwidth** of the protection link [See Specification, Page 11, Lines 15-16];

Bandwidth sharing allows computation of more optimal paths that considerably **reduce** the required amount of **restoration bandwidth**, and thus the overall **cost the network**. [See Specification, Page 18, Lines 17-19].

Therefore, the **protection capacity** and the **protection bandwidth** are the same , or equivalent to, **cost of the network** [see Specification, Page 11, Lines 7 and Page 11, Lines 15-16 and Page 18, Lines 17-19].

Doshi '875 teaches calculating the minimum-cost restoration path for the new primary path using the specified set of links, wherein the cost of the minimum-cost restoration path is based on the sum of the cost of the links of the minimum-cost restoration path (i.e., step 356, assign demands to two routes with minimum capacity, using the one with least capacity for restoration, assigned to two routes with minimum capacity, using the route with the least capacity for restoration) [see Fig. 16B, step 356, and Col. 30, Lines 50-62].

As a result, the rejection of claim 23 is proper.

Therefore, the examiner respectfully believes claim 23 is unpatentable over the cited references

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Chuong. T. Ho./

Examiner, Art Unit 2476

Conferees:

/Salman Ahmed/

Primary Examiner, Art Unit 2476

/Ayaz R. Sheikh/

Supervisory Patent Examiner, Art Unit 2476